(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



. 2001 - 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 11

(43) International Publication Date 6 May 2004 (06.05.2004)

PCT

(10) International Publication Number WO 2004/039074 A1

(51) International Patent Classification7: G06T 7/20

H04N 7/01,

(21) International Application Number:

PCT/IB2003/004352

- (22) International Filing Date: 1 October 2003 (01.10.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02079389.9

22 October 2002 (22.10.2002)

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DE HAAN, Gerard [NL/NL]; c/o Prof . Holstlaan 6, NL-5656 AA Eindhoven (NL). BIEZEN, Paul, W., A., C. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). WITTEBROOD, Rimmert, B. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

- (74) Agent: GROENENDAAL, Antonius, W., M.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

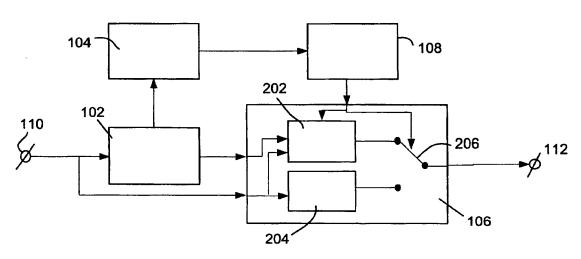
Published:

with international search report

[Continued on next page]

(54) Title: IMAGE PROCESSING UNIT WITH FALL-BACK

200



(57) Abstract: An image processing unit (100,200,300) for computing a sequence of output images on basis of a sequence of input images, comprises: a motion estimation unit (102) for computing a motion vector field on basis of the input images; a quality measurement unit (104) for computing a value of a quality measure for the motion vector field; an interpolation unit (106) for computing the output images by means of interpolation of pixel values of the input images, on basis of the motion vector field; and control means (108) to control the interpolation unit (106) on basis of the quality measure. The quality measurement unit (104) is arranged to compute the value of the quality measure on basis of a maximum difference between neighboring motion vectors. If the value of the quality measure is lower than a predetermined threshold, then a motion compensated interpolation is performed, else a non-motion compensated interpolation is performed.

WO 2004/039074 A1



 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

*						
A. CLASSIFIC	CATION OF SUBJECT MATTER H04N7/01 G06T7/20					
A coording to I	nternational Patent Classification (IPC) or to both national classification a	and IPC				
	EARCHED					
Minimum doc	umentation searched (classification system followed by classification sy	mbols)				
IPC 7	HO4N GO6T					
	on searched other than minimum documentation to the extent that such o	documents are included in the fields sea	rched			
Documentation	on searched other transfer and the search of the search other transfer and the search other tran					
Ci-steple de	ata base consulted during the international search (name of data base an	nd, where practical, search terms used)				
	, PAJ, WPI Data, EPO-Internal					
INSPEC	, (AU, WII DUOU, 1.0 D					
1						
	ENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where appropriate, of the releval	nt passages	Relevant to claim No.			
Calogory			1-2 6 7			
lγ	CSILLAG P ET AL: "Frame rate conve	ersion	1-3,6,7, 10-13			
1	based on acceleration and motion-based					
	segmentation" DIGITAL COMPRESSION TECHNOLOGIES A					
	SYSTEMS FOR VIDEO COMMUNICATIONS,					
	GERMANY, 7-9 OCT. 1996, vol. 2952, pages 438-448, XP00802					
1	Proceedings of the SPIE - The					
	I International Society for UDIICal	On4				
1	Engineering, 1996, SPIE-Int. Soc.					
	Eng, USA ISSN: 0277-786X					
	abstract					
	page 438, line 21 -page 439, paragraph 2					
	-/	/				
1						
TVI F	urther documents are listed in the continuation of box C.	Patent family members are list	ed in annex.			
الثا	A whilehed after the international filling date					
	 Special categories of cited documents: *T* later document published after the international fluing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention 					
l cou	ne claimed invention					
l filis	no date	document is taken alone				
	ument which may throw doubts on priority claim(s) or nich is cited to establish the publication date of another allon or other special reason (as specified)	ne claimed invention n inventive step when the				
O doc	cument referring to an oral disclosure, use, exhibition or	r more other such docu- ovious to a person skilled				
ana doc	her means cument published prior to the international filing date but	tent family				
	ter than the priority date claimed the actual completion of the international search	Date of mailing of the International	i search report			
Date of		04/03/2004				
ļ	26 February 2004					
Name	and mailing address of the ISA	Authorized officer				
	European Patent Office, P.B. 5818 Patentiaan 2	Chateau, J-P				
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Chaceau, 0-1				

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages 1-3,6,7, PATENT ABSTRACTS OF JAPAN 10-13 Υ vol. 1995, no. 11, 26 December 1995 (1995-12-26) & JP 07 222167 A (NIPPON TELEGR & TELEPH CORP), 18 August 1995 (1995-08-18) abstract



pplication No PCT/IB 03/04352

			PC1/18 03/04382		
Patent document cited in search report		Publication date	Patent family member(s)	Publication date	
JP 07222167	A		NONE		